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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/754,518

01/12/2004

Yoshiharu Hidaka

60188-751

8259

7590

01/25/2006

Jack Q. Lever, Jr.  
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EXAMINER

LE, THAO X

ART UNIT

PAPER NUMBER

2814

DATE MAILED: 01/25/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

H.A

<b>Office Action Summary</b>	<b>Application No.</b>		<b>Applicant(s)</b>	
	10/754,518		HIDAKA ET AL.	
	<b>Examiner</b>		<b>Art Unit</b>	
	Thao X. Le		2814	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 09 January 2006.
- 2a) ☐ This action is **FINAL**.
- 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) 5-8 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-4,9-12 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 09 January 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
 a) ☐ All    b) ☐ Some    \* c) ☐ None of:  
     1. ☐ Certified copies of the priority documents have been received.  
     2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
     3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
 \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
 Paper No(s)/Mail Date 01/09/06.
- 4) ☐ Interview Summary (PTO-413)  
 Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Response to Arguments*

1. Applicant's request for reconsideration of the finality of the rejection of the last Office action is persuasive and, therefore, the finality of that action dated 09 Jan. 2006 is withdrawn.

### *Claim Rejections - 35 USC § 102*

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1, 3, 9, 11 are rejected under 35 U.S.C. 102(b) as being anticipated by US 6439969 to Koma et al.

Regarding claim 1, Koma discloses a semiconductor substrate in fig. 2 having a notch 3, col. 7 line 58, the notch having two shoulder portions 3c, col. 7 line 65, each configured as an arc and a difference in curvature between the two shoulder portions 3c being not less than 0 mm and not more than 0.1 mm.

Koma discloses portions 3a's and 3c's are symmetrical, col. 6 lines 33-40 and col. 10 lines 10-15; thus the different of the 3c would be not less than 0 mm and not more than 0.1 mm or zero.

Regarding claims 3, 11 Koma discloses the semiconductor substrate wherein the notch has a bottom portion configured as arc 3b, col. 7 line 67, and the bottom has a curvature not less than 1 mm, col. 8 line 15 fig. 3 (H),

Regarding claim 9, Koma discloses method for fabricating a semiconductor substrate having a notch in an edge portion thereof the method comprising the step of: a processing step of mirror-polishing the edge portion 3a, col. 6 line 48-54, the processing step including the step of shaping each of two shoulder portions 3c, fig. 2, the notch 3 into an arc and adjusting a difference in curvature between the two shoulder portions to a value of not less than 0 mm and not more than 0.1 mm.

Koma discloses portions 3a's and 3c's are symmetrical, col. 6 lines 33-40 and col. 10 lines 10-15; thus the different of the 3c would be not less than 0 mm and not more than 0.1 mm or zero.

4. Claims 1, 3-4, 9, 11 are rejected under 35 U.S.C. 102(b) as being anticipated by US 6174222 to Sato et al.

Regarding claim 1, Sato discloses a semiconductor substrate 1 in fig. 1a-1d having a notch 10, col. 7 line 15, the notch having two shoulder portions  $\theta_5$  and  $\theta_6$ , col. 7 lines 53 and 57, each configured as an arc and a difference in curvature between the two shoulder portions 3c being not less than 0 mm and not more than 0.1 mm.

Sato discloses portions  $\theta_5$  and  $\theta_6$  having angle of  $30^0$ , col. 6 lines 3; thus the curvature different would be not less than 0 mm and not more than 0.1 mm or zero.

Regarding claims 3, 4, 11-12, Sato discloses the semiconductor substrate wherein the notch has a bottom portion configured as arc and the bottom has a curvature not less than 1 mm (portion D = 3.0 mm r- 1.5 mm), col. 8 line 24 fig. 1(a), wherein the notch 10 has two wall surfaces each mirror-finished, abstract, and forming an angle not less than  $89^{\circ}$  and not more than  $95^{\circ}$  therebetween, col. 8 line 22.

Regarding claim 9, Sato discloses method for fabricating a semiconductor substrate 1 having a notch 10 in an edge portion thereof the method comprising the step of: a processing step of mirror-polishing the edge portion, abstract, the processing step including the step of shaping each of two shoulder portions  $\theta_5$  and  $\theta_6$ , fig. 1(d) of the notch 10 into an arc and adjusting a difference in curvature between the two shoulder portions to a value of not less than 0 mm and not more than 0.1 mm.

Sato discloses portions  $\theta_5$  and  $\theta_6$  having angle of  $30^{\circ}$ , col. 6 lines 3; thus the curvature different would be not less than 0 mm and not more than 0.1 mm or zero.

### ***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of

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the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

7. Claims 2, 4, 10, and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 6439969 to Koma et al.

Regarding claims 2, 4, 10, and 12 Koma does not disclose the two shoulders having the curvature not less than 1 mm and the notch having an angle not less than 89° and not more than 95° therebetween.

But Koma discloses the shoulder 3c having curvature less than the curvature 3b, fig. 3, and wherein the notch has two wall surface 3a each mirror-finished, col. 6 line 48-54, and the 3b curvature having a general angle.

Accordingly, it would have been obvious to one of ordinary skill in art to use teaching of Koma in the range as claimed, because it has been held that where the general conditions of the claims are disclosed in the prior art, it is not inventive to discover the optimum or workable range by routine experimentation.

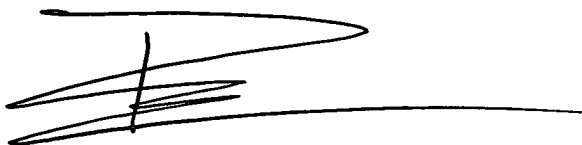
See *In re Aller*, 220 F.2d 454, 105 USPQ 233, 235 (CCPA 1955).

**Conclusion**

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thao X. Le whose telephone number is (571) 272-1708. The examiner can normally be reached on M-F from 8:00 AM - 4:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wael M. Fahmy can be reached on (571) 272 -1705. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in black ink, consisting of a large, stylized 'T' followed by a horizontal line and some additional strokes.

Thao X. Le  
Patent Examiner  
19 Jan 2006

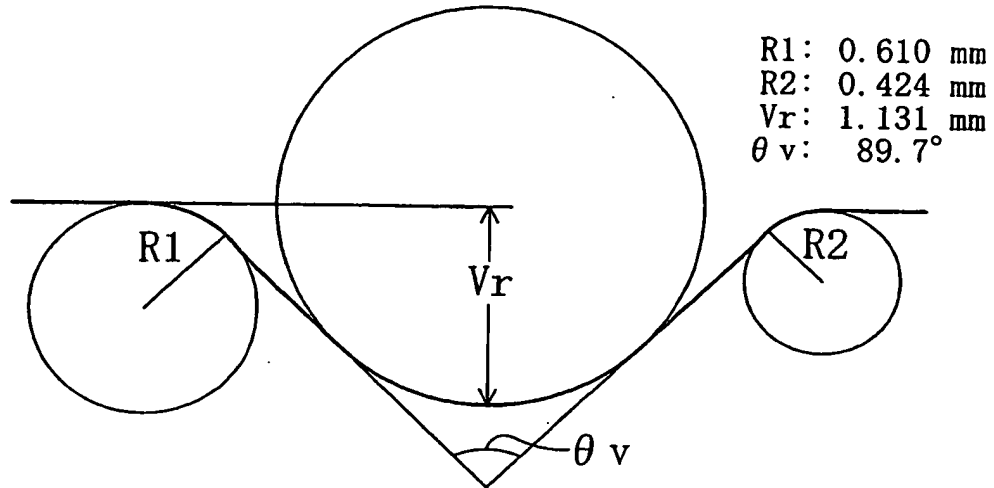
# REPLACEMENT SHEET

8/12



FIG. 8

First Comparative Example



OL  
TL



## 9/12



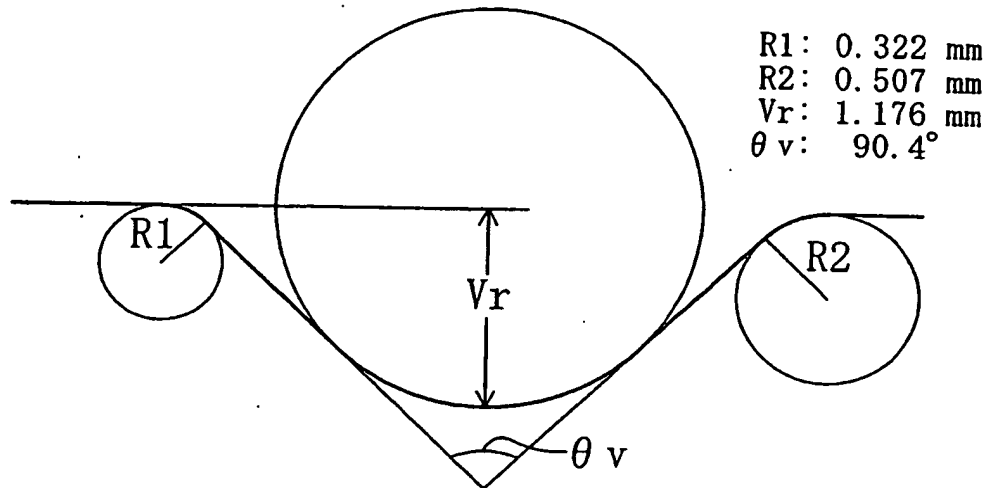
### First Comparative Example

# REPLACEMENT SHEET

10/12

## FIG. 10

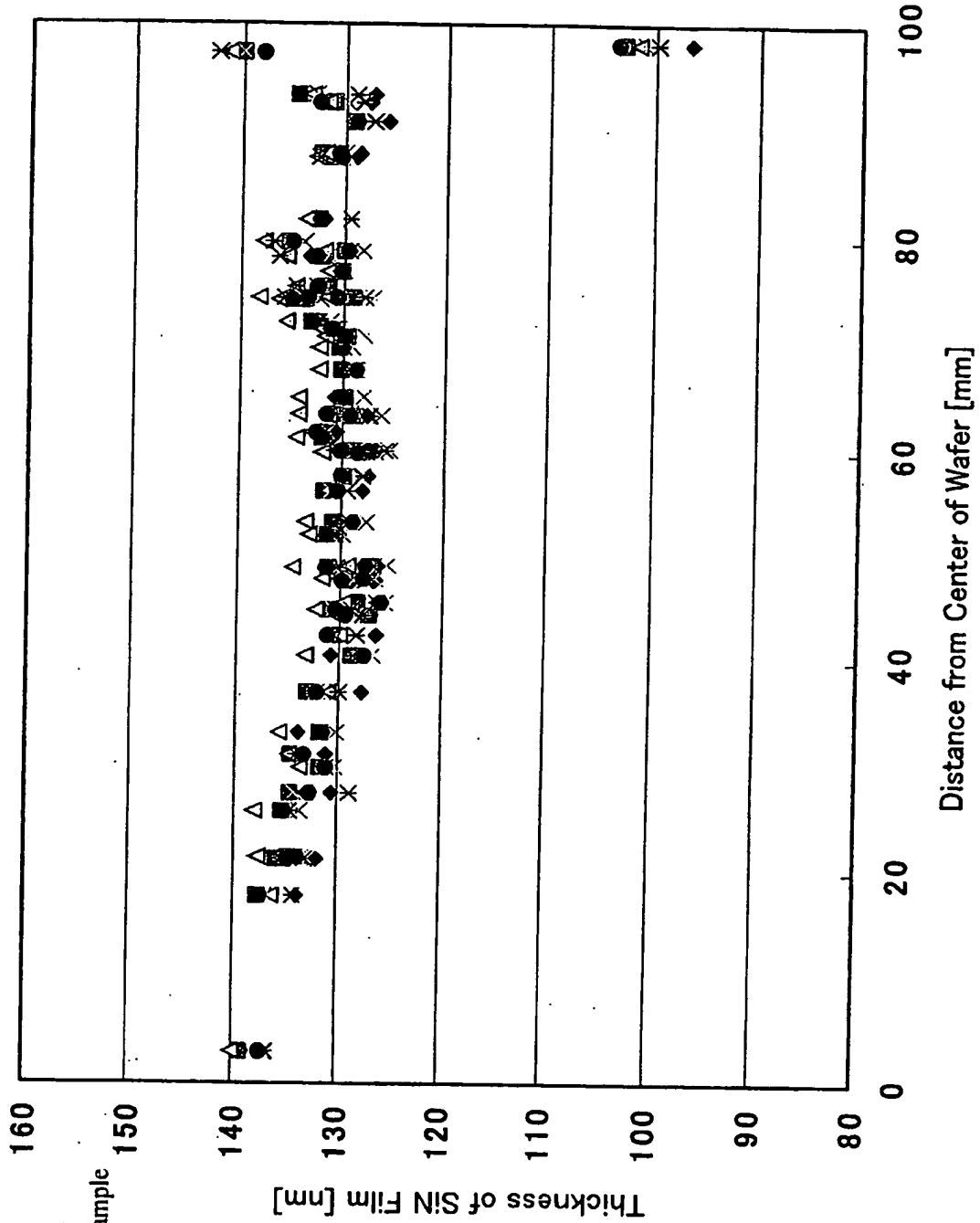
Second Comparative Example



ok  
TL

# REPLACEMENT SHEET

11/12



ok  
T<sub>2</sub>